

## NOTE

### LONGEVITY AND GROWTH OF TAGGED KING CRABS IN THE EASTERN BERING SEA

During the period 1957 through 1959, the Bureau of Commercial Fisheries (now the National Marine Fisheries Service) released 32,328 tagged king crabs, *Paralithodes camtschatica*, in the eastern Bering Sea. Since then several thousands have been recovered, 23 of which exceed previously reported maximum ages for this species (Table 1). These crabs were originally captured by Bureau research vessels, marked with serially numbered plastic spaghetti tags inserted through the isthmal muscle (method described in Alaska Fisheries Board and Alaska Department of Fisheries, 1955: 34-43), and released immediately. Crabs were recaptured by the crab tangle net fisheries of Japan and the Soviet Union, and recapture data were provided by the two nations as part of annual exchanges of scientific information called for by bilateral fishing agreements with the United States.

We estimated the ages of the crabs at release from size and age data for young king crabs published by Weber (1967). Weber found that both male and female king crabs in the eastern Bering Sea mature at about 95 mm carapace length; that males reach this size in 5 years and females in 5½ years (assuming a hatching date of late April to early May); and that immature crabs longer than 60 mm increased about 16 mm per molt. Growth curves for both sexes were similar up to the fourth year of life (length of 80 mm), but after the females become mature they grow slower. The males, however, continue to grow about 16 mm per molt throughout the rest of their lives (Weber and Miyahara, 1962; Hoopes and Greenough, 1970).

Total age was estimated for all four males, and length data are available for three of the four (Table 1). One male released in 1957 was recaptured in 1968, having been at liberty for 11 years. This crab was estimated to have been

6 years old at time of release, and if this estimate is correct, it was 17 years old at time of recapture. If the average growth per molt was 16 mm, this crab molted three or four times during the 11 years between release and recovery, and the other two crabs for which growth data are available molted only once or twice in 9 years. This molting frequency is much lower than that reported by Weber and Miyahara (1962), but we have no explanation for the reduced rate of molting in the two crabs. Before this study, the oldest known-age king crab reported in the literature was a male that was tagged near Kodiak Island and recaptured 20 miles from the release location 6 years and 4 months later (Powell, 1965). Powell estimated that this male was 7 years old when tagged and 13 years old when recaptured.

TABLE 1.—Carapace lengths and estimated ages of 4 male and 19 female king crabs tagged in the eastern Bering Sea by the National Marine Fisheries Service in 1957, 1958, and 1959 and recovered 1966, 1968, and 1969.

Sex and tag no.	Release date	Recovery date	Carapace length at—		Estimated age at—	
			Release	Recovery	Release	Recovery
<b>Males</b>						
B5178	9/9/57	9/16/68	108	170	6	17
B7013	4/29/58	5/18/66	124	1	7	15
B7364	5/2/58	3/30/68	109	132	6	15
C8909	5/14/59	9/25/68	108	133	6	15
<b>Females</b>						
B7535	5/3/58	5/21/68	97	138	5	15
B7560	5/3/58	6/26/68	94	152	5	15
B7567	5/3/58	6/8/69	99	149	5	16
B7906	5/4/58	5/10/66	109	1	6	14
B8008	5/4/58	4/30/68	110	155	6	15
B8015	5/4/58	5/18/66	108	1	6	14
B8552	5/11/58	3/28/69	108	149	6	16
B9150	5/26/58	5/8/69	90	138	5	15
C2111	6/17/58	5/8/69	130	162	8	18
C2508	6/17/58	4/30/68	99	140	5	14
C2561	6/17/58	6/21/68	114	157	7	17
C2785	6/17/58	5/9/68	77	136	4	13
C2804	6/17/58	5/20/68	108	150	6	15
C3871	6/27/58	5/5/68	97	162	5	14
C3969	6/27/58	5/19/68	94	147	5	14
C4106	6/27/58	6/14/68	107	137	6	15
C4423	6/28/58	3/29/68	104	141	6	15
C4837	6/29/58	9/1/69	102	136	5	16
C5961	7/5/58	5/17/68	91	120	5	14

1 Not available.

Length and age data are available for 17 of the 19 females (Table 1). One attained an estimated age of 18 years, having been at liberty for 10 years after being tagged. If these 17 females molted once each year, their growth per molt ranged from 3.1 to 7.2 mm (length); the average increment was 4.7 mm. This average value is similar to other reported annual growth increments for female king crabs in Alaska waters—4.4 mm (Powell, 1967), 3.9 mm (Gray, 1963), 5.0 mm (Bright, Durham, and Knudsen, 1960), and 4.0 mm (Sakuda, 1959).

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